JAN. Vol. 7 — San Antonio Radio Club — 1976 No.2

BULL-ETIN

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Meets first and third Fridays at 7:30 P.M. at the Red Cross Building, 90 Brees St. ALL who have an interest in amateur radio are cordially invited to attend.

Bull-etin Editor, Dean Davis W5BGE Asst. Ed., Maybelle Davis
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WRIGHT WORDS

By K5CDT Jim Wright

As we enter the bicentennial year, we who are members of the Amatuer Radio Service find ourselves with a continuing obligation to justify retention of all of our bands. I encourage you to resolve this year to demonstrate your support of Amateur radio by making use of at least one band which you do not presently use.

You might be surprised how much 10 meters has been open lately. Often all it need is for someone to put out a long CQ. Another neglected band is 160 meters. Perhaps some of us could convert some old military surplus gear and create some new activity. More use should be made of 6 meters. I understand some good DX openings have occurred recently.

San Antonio Repeator Organization members are encouraged to make greater use of the 6 meter and 450 machines. I sincerely hope that as soon as the FCC publishes its report and order on Docket 20282, SARO will build a 220 machine.

Other neglected areas are the UHF and microwave bands which are waiting for those of us who like to build or modify equipment to provide the innovations required to make these bands readily available to a greater number of amateurs. In addition, such innovations most certainly would contribute to the general improvement of the state of the communications art.

On another subject, Tom Truehardt WB5LOR has agreed to serve as 1976 Field Day chairman. I am certain with the cooperation and support of each of us, he and his committee will make this the most successful Field Day in recent years. W. W. McAllister Park (North East Preserve) has been reserved and those hungry chiggers are anxiously awaiting our arrival the last weekend in June.

73, Jim Wright K5CDT

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SARC PROGRAMS ANNOUNCED

de George WB5LDN

Feb. 20--OLD TIMERS'S NIGHT--This is an annual affair, a MUST to attend! Call and bring an OT with you. A very interestin'evening in store for you.

Mar. 19--SWAP-SELL-AUCTION NIGHT--This turned out to be quiet a sucess in November that many requested a repeat! So get your gear dusted off!

SIMULATED EMERGENCY TEST--See page 3 for detailed information.

Technical Topics

By W5LFM CAL GRAF

Again this year everyone had a chance to have a new year which lasted ler second. For the second year in a row, the Bureau International de L'Heure (BIH) decided that there should once again be a leap second before 1976 began. Therefore, the whole world stood still for one second while the following events occured. 1975 ended with 1975 December 31 23H 59M 60S followed after one second by 1976 January 1 0H 0M 0S. If your quartz watch looks like it is one second fast now, that's because it kept running while WWV time stopped for one second, At any rate, have a Happy New Year!

The wonders of electronics continues to amaze us all. PPG Industries now has out an electronic glass which can be used in appliances, timepieces, visual displays, and instrumentation of every description. The secret is a permanent conductive metallic-oxide coating on the glass. The glass can ne made to trigger functions at the mere touch of a finger, such as tuning a TV set, starting the wash or figuring figures on calculators. The coating can be applied to form letters, numbers, or any visual display imaginable. It is very reliable as there is really nothing to go wrong. There are no moving parts, no knobs, dials, switches, buttons--just glass.

An interesting item in Electronic Design says that there is a program afoot in Washington to pressure the FCC to allow CB license to be sold by merchants at a point of purchase, just as hunting license are throughout the country. Things are bad now on the CB channels and they can only get worse as the channels become more crowded. Soon, CB will be good only out in the country where there are fewer strong signals to be received. Amateurs should really appreciate the moderately quiet bands they now have. Let's hope the FCC won't be pressured too much to make encroachment on the amateur bands so it can pe parcelled out to the Smokey avoiders.

The electronic digital quartz watch continues to sell like mad the way the pocket calculator has. In 1975, 3.5 million were sold and by 1980 88 million are expected to be sold at a retail value of $2.8 billion. The 1975 average price of $76 should drop to a low end price of $13 by 1980. All this is rather fantastic when you consider that the quartz wristwatch is smaller than the old Bliely holder. And of course, it's stability is really something unheard of when you think that they can maintain less than a minute a year. They are actually more accurate when worn on the wrist as the body is a heat sink, keeping the watch at a controlled temperature of about 98.6 degrees.

Amateurs are aware of phase relationships and the use of master oscillators in electronic equipment. However, we are not aware of our own internal clocks and the ways in which they affect our lives. Biorhythm is a mathematical theory which seems to explain why we vary from day to day physically, emotionally and intellectually. We all have biorhythm but most people don't realize that they exist and really influence their lives. When we are born, there are three basic rhythms set in motion which continue until the day we die. The point where any of these curves intersect the zero line is considered to be a critical points occur when the curve goes either from plus to minus or minus to plus. On critical days you don't need to stay in bed and hide and it doesn't represent a day on which you are doomed. It does, however, represent a day when you possibly could cause an accident. Critical days affect not only emotions thay also affect health in that many people either suffer heart attacks, or commit sucide on double critical days.

Double critical days occur in each person's life about six times per year, while single critical days happen about six times per month. Tripple critical days happen about once a year. This represents a time when all three curves pass through zero on the same day. To see how the biorhythm whammy might affect you, make desk calendar notations of how you feel or what happened during the past 33 days. You might be surprised. You might even be able to predict when you are going to win the SARC attendance prize. And that would be something!

Regards for now. Cal Graf W5LFM.

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THE 1976 CHRISTMAS PARTY OF THE SAN ANTONIO RADIO CLUB WILL BE SATURDAY DECEMBER 4--MAKE YOUR PLANS NOW!

SIMULATED EMERGENCY TEST

South Texas got off easy last year weatherwise. We didn't have an actual Big "E" this hurricane season to keep our local operators sharp. So we need the Simulated Emergency Test all the more this year. This year, in addition to the use of W5SC at Red Cross, stations in each section of the city will be designated as control points. You can readily see that such an operation will need many operators. Here is your opportunity to practice for a real emergency! All amateurs in the SA area are invited to participate. Please let me know your intention. Would like to see you at Red Cross Headquaters by 1 p.m. Saturday, Jan. 24, and give W5SC help at one of its several areas.

The frequencies that will be used are 7290 kHz, 3961 kHz and 2 meters. Each one who checks in with W5SC is expected to orginate at least two SET messages: one to his Section Emergency Coordinator S. Tex. indicating that he or she is taking part in the exercise, and one to a friend in his section or region. The Simulated Emergency Test affords us an opportunity to review our message drafting and handling techniques. Preface all SET message precedences with the word TEST. For detailed info see page 55 Dec. QST.

SAMPLE MESSAGE: Message number___ Test Routine HXB Check 6
San Antonio, Tex. 1830Z (or the time you file in GMT) Jan. 24
TO: Sue Rich WB5CUR, SEC S. TX. Los Fresnos, Tx.
Test message am participating in SET.
Signed (your name and call letters)
NOTE: HXB means--Cancel message if not delivered within the SET period; service (send a service message to) originating station.

If you are not an AREC member, please see me for application blank. We get extra points for each amateur who participates if he is a member. If you are able to check in with emergency power please indicate so.

73, Frank Gerwitz W5QMH, EC Bexar Co.

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FROM HR REPORT

HEATH HAS RECALLED its new HW-2026 synthesized 2-meter transceiver after users found its spurious outputs were causing problems in urban areas! The Heath radio did meet its -45 dB spur spec--which, incidentally, is also the international and only applicable spur specification for 2-meter Amateur transmitters--comfortably but shortly after the sold-out first production run was shipped November 15, calls and letters started arriving from builders asking why they were being heard on simplex channels and repeater inputs on frequencies other than those dialed.

After an intensive engineering investigation it was determined that there was no "quick-fix" possible for the 2026 problems. Then Heath made the very difficult (and expensive) decision to call back all the 2026s that had gone out and discontinue the model, an extremely commendable and responsible choice. In its notification letter scheduled to go in the mail last week Heath is not only reimbursing purchasers their purchase price and shipping costs both ways, but every buyer who completed his 2026 will receive a $50 gift certificate from Heath as repayment for his time and effort! Those who return unfinished or unstarted kits will receive a $25 Heathkit gift certificate.

As painful--financially and otherwise--as the recall is to Heath it cannot help but enhance the already high regard that Amateurs have for Heathkit equipment. An improved synthesized replacement for the HW-2026 is already in the planning stages at Heath, with hopes that it will be ready by late 1976.

Transmitter Spurious outputs such as those reported from the Heathkit 2026 and early Mulit-2000 are not the only problems facing buyers of Amateur VHF/UHF gear. Because of the potential interference to the many services using the higher frequencies all receivers that tune above 30 MHz that are sold commercially must be FCC certified that they meet the limits on radiation specified in Part 15 of the rules. Some Japanese imports have come in without Part 15 certification and reports are that some uncertified equipment is being sold currently on the Amateur market. Buyer beware!

de HR REPORT

CLAY COMMENTS

DC METER MOVEMENTS AND CIRCUITS

By
W5ZPV
Clay Laster

Every amateur is familiar with the meters used to monitor current and voltage levels in his station equipment. However, some amateurs may not be familiar with the basics of designing DC meter circuits for home brew projects. Also, it may be necessary to replace defective meters in station equipment where replacement meters are not available. The purpose of this series of articles is to present some of the basic design information concerning DC meters.

The standard workhorse DC meter, designated D'Arsonal Movement, was developed by the celebrated French psysicist Jacques Arsene D'Arsonal in 1881. Unfortunately radio had not been invented at that time--D'Arsonal would have probably been an expert radio amateur operator/experimenter. However, he would have been somewhat sad to learn that the analog DC meter movement will probably vanish in the foreseeable futute along with the vacuum tube. The advent of the new solid state digital techniques of analog-to-digital conversion with Light Emitting Diodes (LED) displays are already replacing DC meters in such equipments as volt-ohmmeters.

Until the new LED/digital components are available to the amateur at reasonable prices, the current DC meters will continue to be used in many applications in the amateur shack.

All D'Arsonal DC meters indicate current flow. Thus, current flow can be equated to current, voltage, resistance, or other value such as signal strength. Meter accuracy is on the order of about two percent (0.02). Meter movements range from amperes down to the millampere range. A typical meter may have a meter movement of zero to one milliamphere (0--1.0ma.). Internal resistance of the meter will be on the order of about 50 ohms. A recent development in meters is the taut-band meter. The moving element of the taut-band meter is suspended by two thin metal ribbons, kept under tension by elastic members at each end of the assembly. The primary advantage of the taut-band meter is that of increased sensitivity. Meter movements of microamperes are achieved--typical sensitivities of 0--50 microamperes are readily available. Disadvantages are slow response and delicate construction subject to shock and vibrations. Also, a heavy surge of current will damage such a meter movement--the author can verify this from experience.

METER SENSITIVY--Meter sensitivy is simply the operating range of the meter. If the meter sensitivy is not known, this can be determined by comparing its performance with a known meter in series with a battery (or DC power supply) and a series resistance. In some instances, it will be found that a surplus meter will have one scale indicating some current (or other quanity) scale but the meter will have a different movement. Figure 1 shows a circuit which may be used to determine the meter sensitivy. Simply adjust the variable resistance, R-1, to show a full scale deflection of the unknown meter. The reading on the known meter then shows the sensitivy or operating range of the unknown meter. A volt-ohmn-meter, switched to the current ranges may be used as the known meter.

INTERNAL RESISTANCE--The internal resistance of the meter must be determined in order to use the meter in circuits to measure current, voltage, or other quantities. The internal resistance value will be used in the computing of meter shunt resistances for current multiplier ranges and series resistances for expanded voltage ranges. Figure 2 shows a circuit for determining the meter's internal resistance. Steps in this process are as follows:

(a) Set switch S-2 to OPEN.

(b) Close switch S-1 and adjust R-1 to show a full scale reading of the meter.

(c) Close switch S-2 and adjust R-2 to reduce the meter reading to exactly one half of full scale reading. (Note--this is only applicable to meter scales which are linear. Non-linear scales such as signal strength scales or ohmn-meter scales are not applicable to this technique.)

(d) The value of resistance as set in R-2 is equal to the internal resistance of the meter. Open switches S-1 and S-2 and measure the adjusted value of R-2 with an ohm-meter.

The next article will show the computations for current and voltage multiplier

resistances. For example, a 0--50 microampere meter can be used as a current meter with ranges of 0--1.0 ma, 0--100 ma, ect.; a voltmeter with ranges of 0--1.0 volts, 0--10 volts, etc.; or an ohm-meter with various ranges.

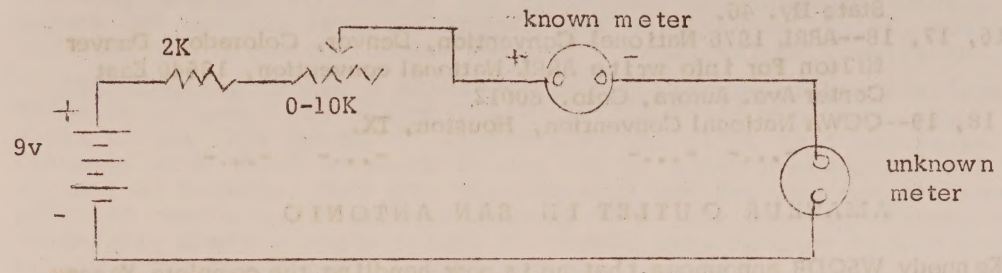

Figure 1--Circuit to determine sensitivity of unknown meter.

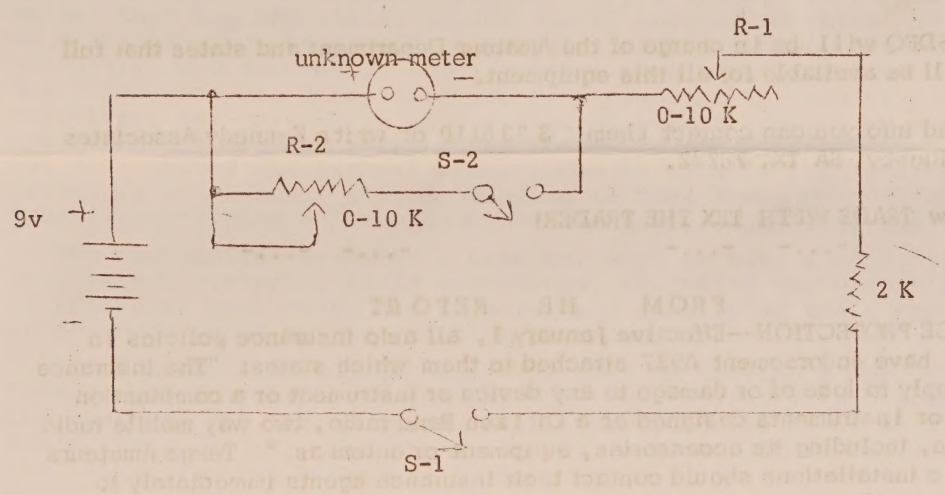

Figure 2--Circuit to determine internal resistance of DC meter.

73, Clay Laster W5ZPV.

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CODE AND THEORY CLASSES ANNOUNCED

A General/Advance Class will start Monday, Feb. 1, to run Mondays and Thursdays from 7 to 10 p.m. It will held at John Jay Hi School with Statt Riddlebarger WB5MRP as the instructor. The class will finish in time for the FCC exams in May.

Fee for the course is $30. To register contact Statt at 673 5904, or write him at 8602 Angel Valley, 78227.

A Novice Class, beginning Feb. 4 on Wednesdays nights 6:30 to 9:30 , will be held at the Northwest YMCA. Instructor to be announced. Fee will be $25. To register, contact Northwest YMCA.

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YOUR SARC CLUB DUES ARE DUE

We want YOU to continue your membership and support of SARC. You need the Club, if you are a San Antonio area Amateur. The CLUB NEEDS YOU! Fill out the Application/Renewal blank below and mail it in now.

.....

SARC MEMBERSHIP - APPLICATION/RENEWAL

NAME_____CALL_____

ADDRESS_____

CITY _____ZIP_____

ARRL Member_____AREC_____TELEPHONE_____

(dues $6 per year, $1 for XYL)--Mail to San Antonio Radio Club, 1431 W. Hollywood San Antonio, Texas 78201

COMING EVENTS TO MARK ON YOUR CALENDAR

Feb. 13, 14, 15--Tex. VHF FM Society, Winter Meeting, Aggieland Inn, Bryan
April 30, May 1, 2--STEN Convention, New Braunfels at Gourmet Inn, IH 35 at State Hy. 46.
July 16, 17, 18--ARRL 1976 National Convention, Denver, Colorado, Denver Hilton For info write ARRL National convention, 13640 East Center Ave. Aurora, Colo. 80012
Sept. 18, 19--QCWA National Convention, Houston, TX.

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AMATEUR OUTLET IN SAN ANTONIO

Tex Kennedy W5QDB announces that he is now handling the complete Yaseau line. Other lines include: Standard, SBE, KLM, Regency, Cush Craft and Rohn towers, with more to added soon.

Woody WB5DFQ will be in charge of the Amateur Department and states that full service will be available for all this equipment.

For detailed info you can contact them - 3 33 6110 or write Kennedy Associates Inc, 2618 Rigsby, SA TX. 78222.

You can now TRADE WITH TEX THE TRADER!

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FROM HR REPORT

INSURANCE PROTECTION--Effective January 1, all auto insurance policies in Texas will have endorsement A927 attached to them which states: "The insurance does not apply to lose of or damage to any device or instrument or a combination of devices or instruments designed as a Citizen Band radio, two way mobile radio or telephone, including its accessories, equipment or antennas." Texas Amateurs with mobile installations should contact their insurance agents immediately to arrange for specific coverage for their radios.

BEST ID NUMBER for marking mobile or other radio gear is NOT your Social Security number. Since Social Security numbers are protected by federal privacy regulations, they usually cannot be used to trace a recovered item back to its owner. Police recommend engraving your Soundex number on any gear you wish to protect. Your Soundex number is that long number found on your driver's license, and they are now used almost universally and can be easily traced by computer.

LICENSE RENEWAL REQUIREMENTS for operating time and code proficiency have been dropped in a Report and Order adopted by the FCC effective last Dec 24, is a logical one since the requirements were essentially unenforceable.

ORIGINAL--NOT A PHOTOCOPY--of an Amateur's license would have to accompany any application for renewal or modification of that license if a Notice of Proposed Rule making adopted at the same time becomes a part of the rules. The NPRM apparently results from a recent rash of cases in which licensees have attempted to upgrade their license class by submitting a modifiedphotocopy of the original.

VOLUNTEER EXAMINERS will be required to submit a photocopy of their license instead of the present "statement of qualifications" if another NPRM expected out shortly becomes part of the Rules. The purpose of this requirement is to provide FCC better assurance that a volunteer examiner is indeed qualified to administer the examination he's volunteered to give.

RECENT RECIPIENTS OF AMATEUR LICENSES wondering what the code letters beside their calls mean can rest easy--"R" means renewal, "M" is modified, and "N" indicates new. de HR REPORT

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FOR TRADE--Have model 15 teletype will trade for Drake DC power supply, Bill WA5OJC, 684 1200.

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SPLATTER--Bill W5OOJ was the lucky winner of the ICOM at the Christmas party... The Newcomers Night meeting was so well attended that chairs could not be found to seat them...Plan now to attend the Nation ARRL convention at Denver...

NEWS AND VIEWS FROM THE ARRL DIRECTOR, WEST GULF DIVISION

The ARRL board of directors assembled in Hartford, Conn., last week for its annual meeting. We were honored by an opportunity on Wednesday afternoon (prior to the formal board meeting, which began Thursday morning) tn have as our guests Mr. Higginbotham, Chief, Safety and Special Services branch, and Mr. Johnson, Chief, Amateur and Citizens Division, of the Federal Communications Commission.

This meeting marked a milestone in the history of the American Radio Relay League by having these distinguished gentlemen pay a visit to the ARRL Board. It illustrates the point that our relationship with the Commission is now one of close cooperation for our mutual benefit. Both Mr. Higginbotham and Mr. Johnson are now licensed Amateurs. It follows that if we maintain a high degree of leadership Amateur radio stands to retain this respect by our governing body, the Federal Communications Commission.

In his remarks, Mr. Higginbotham emphasized the policy of the FCC, with regard to Amateur affairs is now one of 'de-regulation' rather than the imposition of additional burdensome rules. In turn, we recognize that reasonable regulation of the Amateur service is necessary, and desirable. However,there have been instances where the Commission has gone overboard in attempting to help us govern ourselves, as for example in the case of Docket 18803. On the other hand, there are areas which appear to need assistance from the government. One example which comes to mind is the need for a procedure which would aid in bringing to task those who deliberately cause interference to emergency traffic nets, repeaters, and W1AW.

The discussions revealed a need for ARRL to take a more active role in administering field operations, including the possibility of examining applicants for license, and certifying their capability, in order to speed up the granting of licenses.

Mr. Johnson also touched upon the need to develop a more efficient frequency coordination system for VHF. ARRL recently initiated a call for comments for that purpose in a letter from Lew McCoy to Directors SCM's, VRAC, et al. This is a complex problem. It can be expected the league General Manager will issue another on that subject for additional comments by others in the near future.

Mentioned also during the meeting was the desirability of reducing the number of petitions pertaining to changes in Amateur radio rules which require formal processing, regardless of the validity of the petition contents. This director is certainly sympathetic to this problem. It has been observed that many petitions are so lacking in substance or logic they should have never reached FCC. This is believed to be an area where ARRL can be of some assistance.

It appears the major task which now has the FCC bogged down is the processing of 250,000± CB license applications they are receiving each month. All available personnel have been diverted to this work. Improved procedures, and additional equipment are being utilized and the group is making progress. Unfortunately, this massive work load has caused the processing of Docket 20282 (restructuring), the Class E (220Mhz) proposal, and most others to be temporarily suspended. Mr. Johnson indicated that because of this unanticipated work load some parts of the Report and Order pertaining to restructuring will be issued piecemeal, hopefully this spring, the remainder sometime later.

A number of other aspects of Amateur radio were touched upon during the meeting with FCC officials. No doubt the QST editor will give all of us an expanded report. Perhaps however, the salient feature of the meeting was a strong indication our relationship with FCC is now a two-way street. While this is most desirable, it surely behooves us to exercise a greater degree of responsibility, particularly in the areas of conduct on the air, limiting power output to the minimum necessary for communication, and avoid creation of deliberate or avoidable interference.

Welcome back, Messrs. Higginbotham and Johnson.

* * * * * * *

That old bogey story that we are losing Amateurs at the rate of 350 per month is no longer valid. Total licenses on record December 1, 1975 were 260,091, an INCREASE of 3827 over the reported 256,264 of March 1, 1975. However, we still are concerned over the drop out rate among Novices.

Possibly the board action likely to do the most good for Amateur radio is a new Training/Licensing Program to Revitalize the Growth of Amateur Radio, proposed by the General Manager, Dick Baldwin.

The objectives of the program are to generate a 50% increase in the total number of Amateurs by the end of 1979, and League membership 60% by that time, and to reduce the drop out rate from one-half to one-third. Local clubs will have a large share in its implementation. Watch QST for details. The plan will be complete with lesson plans, code tapes, help for instructors, etc., and presumably if followed, will more adequately prepare students to pass the exams, which hopefully will be given by the instructors, or certified examinors acceptable to the FCC. Naturally, a project as extensive as this is something which will require considerable time to prepare. It can be expected however, that additional people will be hired at headquarters to expedite its preparation. In order to provide necessary close contact with execution of the program, the General Manager is transferring 'club activities' to a separate unit since the Communications Department is already heavily loaded with work.

With reference to membership, I am happy to report our division had an increase of 11.7 percent during 1975. We now have 6825 members in Texas and Oklahoma. Congratulations to all of you who helped make this increase possible.

Incidentally, the new QST format and size is meeting with overwhelming approval. Recommend it be retained in your files. As it is a 'first edition' in the new format it might possibly become a collectors item in the future.

For the Old Timer's night next month we hope to have the ARRL slide collection, with cassette narrative, entitled "The First 30 Years of Amateur Radio." It is supposed to be shipped to us after a showing in California. Let's hope it doesn't get lost in transit.

73, Roy Albright, W5EYB, Director.

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